UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/663,480	09/15/2003	Kiyoshi Honda	16869P-078800US	2877

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EXAMINER
CHACE, CHRISTIAN

ART UNIT	PAPER NUMBER
2189	

DATE MAILED: 08/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _15 September 2003_.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is

closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1-26_ is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _1-26_ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on _15 September 2003_ is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All   b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage

application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
   Paper No(s)/Mail Date _9/15/03, 12/20/04_.

4) ☐ Interview Summary (PTO-413)
   Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____ .

DETAILED ACTION

Response to Amendment

This Office action has been received in response to application filed 15 September 2003, Petition to Make Special, approved 11 April 2005, and Preliminary Amendment received 17 November 2004. Claims 1-26 are pending. Applicants' arguments have been carefully and respectfully considered, but they are not persuasive. This action is not final as it is a first action on the merits of the instant application.

Information Disclosure Statement

IDS received 20 December 2004 has been considered by examiner. A signed and initialed copy is attached hereto.

IDS received 15 September 2003 has been considered by examiner. A signed and initialed copy is attached hereto.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Independent claim 1 recites, "a plurality of first ports for connection with the plurality of storage devices each having a storage area to store data." It is unclear whether each port or each storage device has a storage area to store data. For the

purpose of efficient prosecution, examiner has interpreted this to be each storage

device having a storage area.

Claim 5 appears to recite that the processor decides not to give the data

identification information, but then sends it. This is confusing – how can it send data

without knowing where to send it?

Claims 2-9 depend upon the instant claim and are rejected for at least the

reasons set forth supra with respect to same.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-26 are rejected under 35 U.S.C. 102(b) as being anticipated by

Watanabe et al (EP 1,130,514 A2).

With respect to independent claim 1, a virtualization controller is disclosed in the

abstract. "[F]or controlling data transfer between a host system and a plurality of

storage devices" is an intended use limitation, and has not been given patentable

weight. However, the abstract does disclose just such an inherent use of a virtualization

controller.

A plurality of first ports is disclosed in figure 1, #112 that connect to the storage,

#103 and #104, e.g.. "[F]or connection with the plurality of storage devices" is an

intended use limitation, and has not been given patentable weight. Ports are inherently

capable of connecting to a storage area. Storage devices inherently have a storage

area to store data. Alternatively, however, in light f the interpretation under 112 as

discussed supra, a port having a storage area is disclosed in figure 20.

A second port is disclosed in figure 1 as port controller #112 that connects to a

host, #101. "[F]or connection with the host system" is an intended use limitation, and

has not been given patentable weight. Ports are inherently capable of connecting to a

host.

A processor is disclosed in figure 1, #114.

A memory is disclosed in figure 1, #116. The memory being configured to store

volume mapping information which correlates first identification information used by the

host system to access a first storage area in one of the storage devices, with second

identification information for identifying the first storage area, the correlation being used

by the processor to access the first storage area is an intended use limitation, and has

not been given patentable weight. Memory is inherently capable of storing the claimed

information – any information, actually. However, figure 6 discloses a mapping table

(correlation information) which stores a virtual address (first identification information)

and a physical address (second identification information). Also, see figure 1, #118,

figures 20 and 21, and Paragraph 48.

When data is stored in the first storage area is transferred to a second storage

area in one of the storage devices, the processor correlating the first identification

information with a third identification information (new physical address) for identifying

the second storage area and registering the first identification information and the third

identification information in the volume mapping information is discussed at paragraph

83 in column 11, lines 25-31. When the data is moved, the real address is changed in

the mapping table.

With respect to claim 2, upon receipt of data including the first identification

information, the virtualization controller controlling data transfer of the data between the

host system and the first storage area based on the correlation information in the

volume mapping information is disclosed in figure 13, and discussed in column 15, line

50 into column 16, line 15.

With respect to claims 3 and 11, the second identification information for

identifying the first storage area comprising real port identification of the storage device

containing the first storage area and LUN (figure 14, #1401) designating the first storage

area is disclosed in figure 14, #1402.

With respect to claims 4 and 22, the second identification information comprising

"personal identification" of the first storage area contained in the storage device is

disclosed in figure 14 as "status."

With respect to claim 5, the memory is discussed supra. What it may or may not

be "configured to" do is merely intended uses of which a memory is inherently capable

of doing. However, storing routing information which indicates a relationship of

connection among the virtualization controller, the storage devices, and the host system

is disclosed in figure 13, #1318, e.g.

The processor, upon receipt of data from the host system or any of the storage

devices, deciding whether to give the data identification information or not according to

identification information stored in the volume mapping information is disclosed in

column 13, lines 30-40, which discusses data movement based on status, such as

"normal" or "migrating."

With respect to claims 6 and 13, the first storage area and the second storage

area being storage areas of different storage devices is disclosed in figure 13, #13030

and #1304.

With respect to claims 7 and 15, when transfer of data stored in the first storage

area to the second storage area is started, if a request for access to the first storage

area is received from the host system, the processor holding the request, and then

sending the held request to the storage device having the second storage data upon

completion of the transfer of data is disclosed in column 13, lines 30-40. The processor

merely waits to access the data until it is moved.

With respect to claim 8, the processor is disclosed as discussed supra. What is

may or may not be "configured to" do is merely an intended use limitation, and has not

been given any patentable weight. Processor are inherently capable of doing anything

they are programmed to do. However, column 11, line 55 into column 12, line 27

discusses notifying another virtualization controller of the volume mapping information.

With respect to claim 9, the virtualization controller comprising a third port is

disclosed in figure 1 #112. The remaining limitations of this claim are intended use

limitations, and have not been given patentable weight, as ports are inherently capable

of connecting to anything, and managing units are inherently capable of doing anything

they are "configured to" do. However, figure 13, #1350 discloses a managing unit

connected to one of the ports of the device, which monitors the status, or state of the devices, as shown in figure 14.

With respect to independent claim 10, a data control system connected to one or more host systems is disclosed in figure 13.

A plurality of storage devices each having a storage area is disclosed in figure 13, #1330 and #1341.

A switch which is connected with the plurality of storage devices and the one or more host systems is disclosed in figure 13, #1302, with the host systems being #1301.

The remaining limitations of the instant claim correspond directly to the limitations of claim 1, including the intended use limitations, with the only difference being that the instant claim refers to the virtualization controller of claim 1 as a switch, and the processor of claim 1 is now a routing processor. They are disclosed by the respective showings of the prior art as discussed with respect to claim 1.

With respect to claim 12, the switch further comprising a data transfer processor which controls the process of transferring data stored in a storage area of one of the storage devices to another storage area of one o the storage devices and when data stored in the first storage area in transferred to the second storage area, the data transfer processor correlates the first identification information with the third identification information and registers and stores the correlation information in the memory is disclosed in column 12, line 31 into column 14, line 2.

With respect to claim 14, a managing unit connected [to] the switch, having a volume manager is disclosed in figure 13, #1350. A managing unit is inherently capable

of performing any task it is configured to do (intended use limitation, as discussed

supra).

With respect to independent claim 16, a method of controlling data transfer in a

system including a host system which uses first identification information to access a

first storage area in one of a plurality of storage devices, wherein the first storage area

includes data "associated with" second identification information identifying the first

storage area is disclosed as discussed supra in relevant part with respect to

independent claims 1 and 10.

Issuing a data transfer request (e.g., migration) to the first storage device to

transfer data with the second identification information in the first storage device to a

second storage device and upon receipt of notification of completion of data transfer

from the first storage device to the second storage device, correlating the first

identification information with a third identification information identifying the second

storage area containing the transferred data is disclosed in column 12, line 31 into

column 14, line 2, e.g.

With respect to claim 17, registering the first identification information and the

third identification information in a volume mapping [table?] and storing the volume

mapping table in a memory and converting the data with the first identification

information transferred from the first storage device into data with the third identification

information transferred to the second storage device is disclosed as remapping the port

configuration table, as shown in figure 6, e.g.

With respect to claim 18, holding an access request to the first storage device after issuance of the data transfer request and sending the held access request to the second storage device after receipt of notification of completion of the data transfer is disclosed in column 13, lines 30-40.

With respect to independent claim 19, a method of connecting a virtualization controller between a host system and a storage device which are connected through a first path between a first port of the host system and a first port of the storage device and a second path between a second port of the host system and a second port of the storage device is disclosed in figure 13, where the host system comprises the hosts, and storage devices are the old and new devices.

Accessing a storage area of the storage device, disconnecting the second path between the second port of the host system and the second port of the storage device are disclosed in column 14, lines 6-29.

Connecting the second port of the host system with the virtualization controller through a third path, connecting the virtualization controller with the second port of the storage device through a fourth path are disclosed in column 12, line 31 through column 14, line 2.

Setting, on the virtualization controller, identification used by the host system to identify the storage area, identification information for the virtualization controller is shown in figure 6. The correlation being to define access of the storage area by the host system is an intended result limitation, and has not been given patentable weight. It is an inherent result of the structure of the claim, as anticipated by the cited prior art.

With respect to claim 20, sending, from the virtualization controller to the host

system, the identification information used by the host computer [system?] to identify

the storage area, and the virtual port identification information is disclosed in column 11,

line 15.

Sending, from the host system to the virtualization controller, an access request

to access the storage area using the virtual port identification information through the

second port of the host system is disclosed I figure 6.

Upon receipt of the access request from the host system, accessing the storage

area via the fourth path by the virtualization controller is disclosed in column 13, lines

30-33.

With respect to claim 21, the access request comprising data with the virtual port

identification information is disclosed in column 11, lines 25-31.

Accessing the storage area comprising sending the data associated with the

virtual port identification information from the virtualization controller to the storage area

via the fourth path is disclosed in column 13, lines 30-33.

With respect to claim 23, the identification information for the second port of the

storage device and the virtual port identification information for the virtualization

controller are both "correlated with" the identification used by the host system to identify

the storage area to define an access path from the host system to the storage area is

disclosed in figure 6.

With respect to independent claim 24, a method of controlling a data transfer in a

system including a host system which uses a first identification information to access a

first storage area in one of a plurality of storage devices, wherein the first storage area

includes data associated with second identification information identifying the first

storage area is disclosed in figure 13, and discussed supra with respect to the

previously discussed independent claims.

Receiving a first request with the first identification information from the host

system to access the data associated with the second identification information

identifying the first storage area, sending a second request with the second

identification information to the first storage area, receiving data "corresponding to" the

second request from the first storage area, and sending the data to the host system is

disclosed in figure 6, e.g., in addition to have been discussed supra with respect to

several claims. This is what a mapping table does – it maps a request to the correct

location for the data and then the data is returned.

Claim 25 is disclosed in column 11, lines 25-31.

Claim 26 is merely sending yet another request after the one of claim 25.

Accordingly, the same recitation anticipates it. Inherently, there will be more than one

request for data in the system – otherwise there would be no need to keep it.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-26 rejected under 35 U.S.C. 102(e) as being clearly anticipated by

Nelson et al (US Patent Application Publication #2004/0068637).

Keeping in mind the intended use limitations as discussed supra, paragraph 13

discusses virtual to physical address mapping in a controller. Paragraph 38 discusses

migrating data in response to a transfer command. Other very relevant passages are

paragraphs 19, 21-24, 27-28, 33-35, 39-40, 45, 58, 60, 66, 69, and 79. Also, see figure

4 in particular.

Claims 1-26 are rejected under 35 U.S.C. 102(e) as being clearly anticipated by

McKean et al (US Patent #6,647,387).

Again keeping in mind the intended use limitations discussed supra, relevant

passages include, column 1, lines 35-41; Column 4, lines 4-11, 22-29, and 60-62;

column 5, lines 40-45 and 63-67; column 6, lines 1-2 and 39-67; and column 7, line 1.

Conclusion

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Christian P. Chace whose telephone number is

571.272.4190. The examiner can normally be reached on MAXI FLEX.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Donald Sparks can be reached on 571.272.4201. The fax phone number

for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the

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Business Center (EBC) at 866-217-9197 (toll-free).

Christian P. Chace
Primary Examiner
Art Unit 2189